

FIG. 1

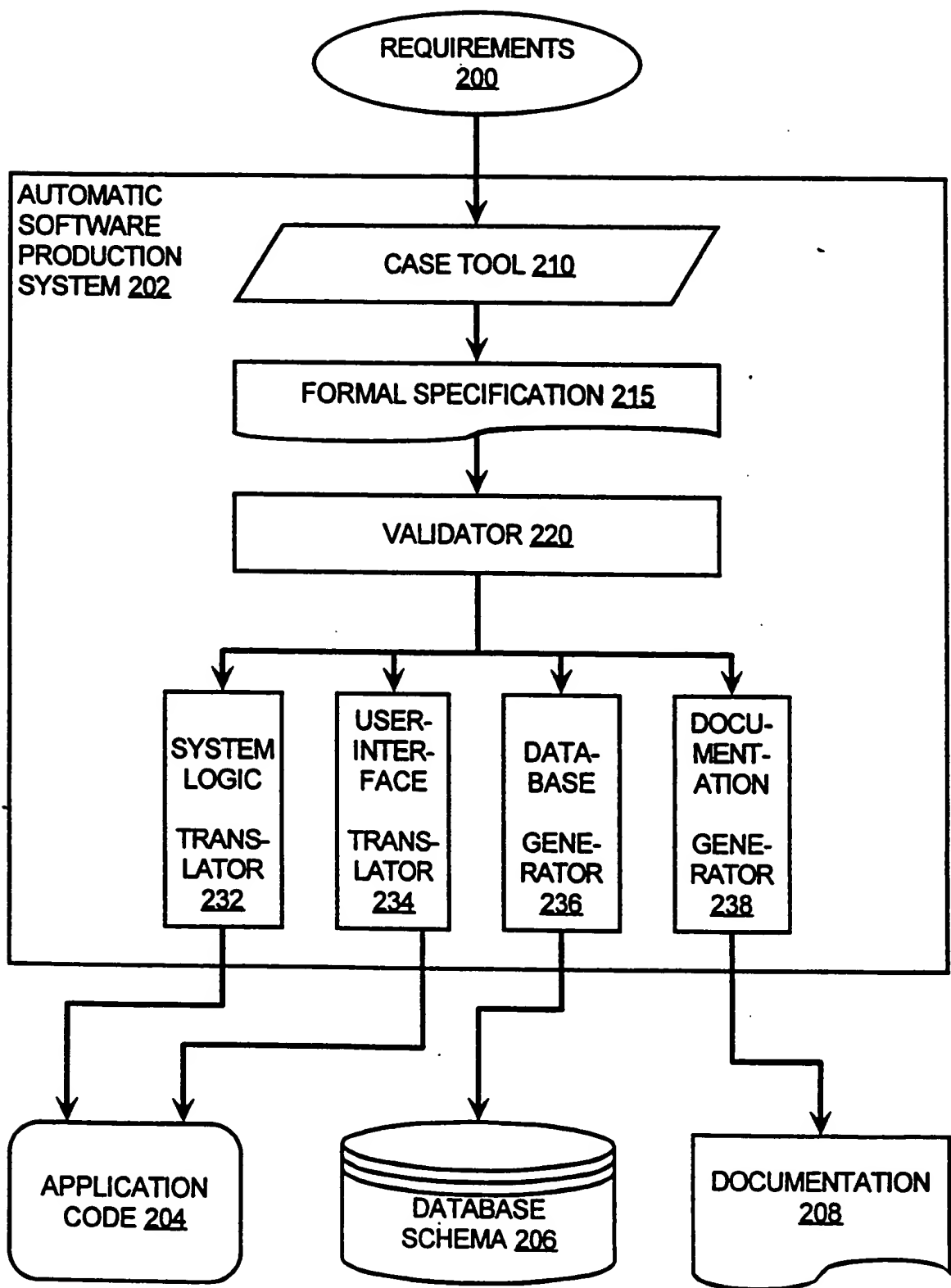


FIG. 2

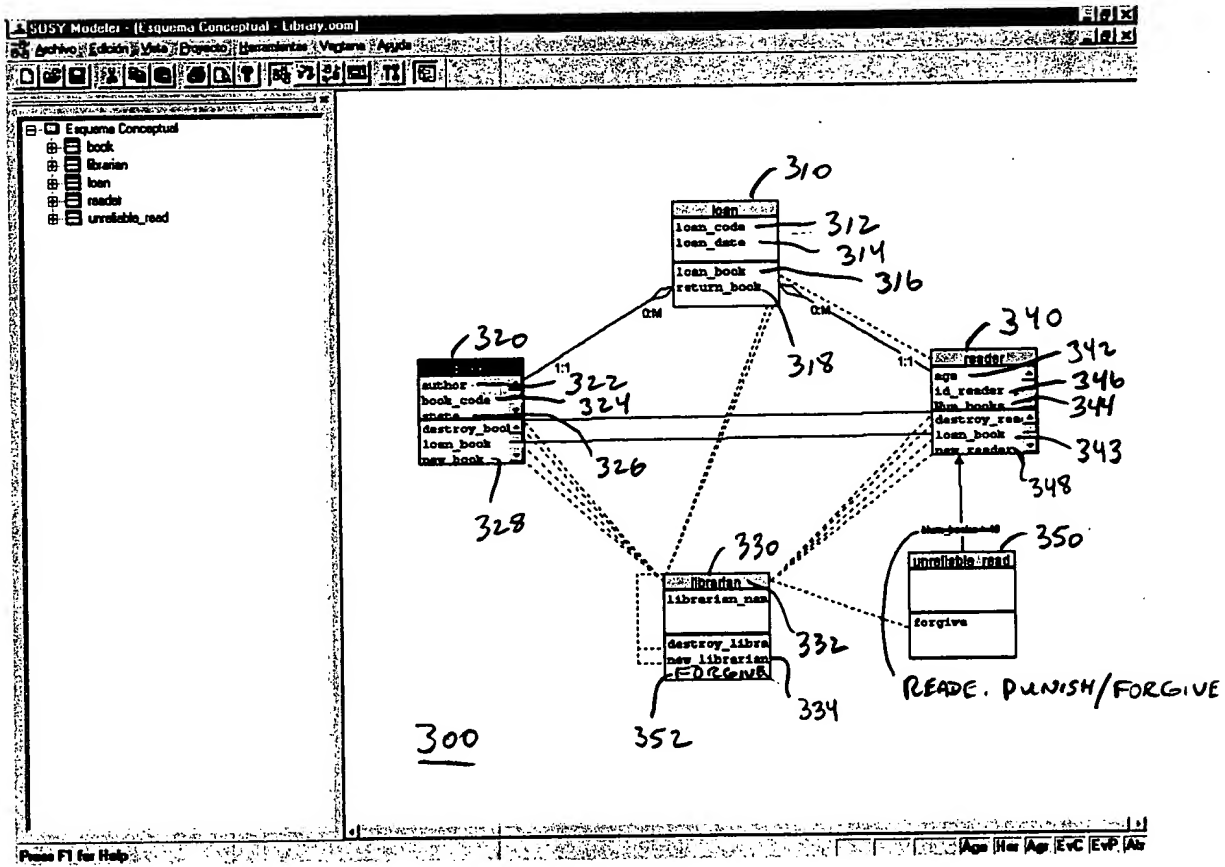


FIG. 3

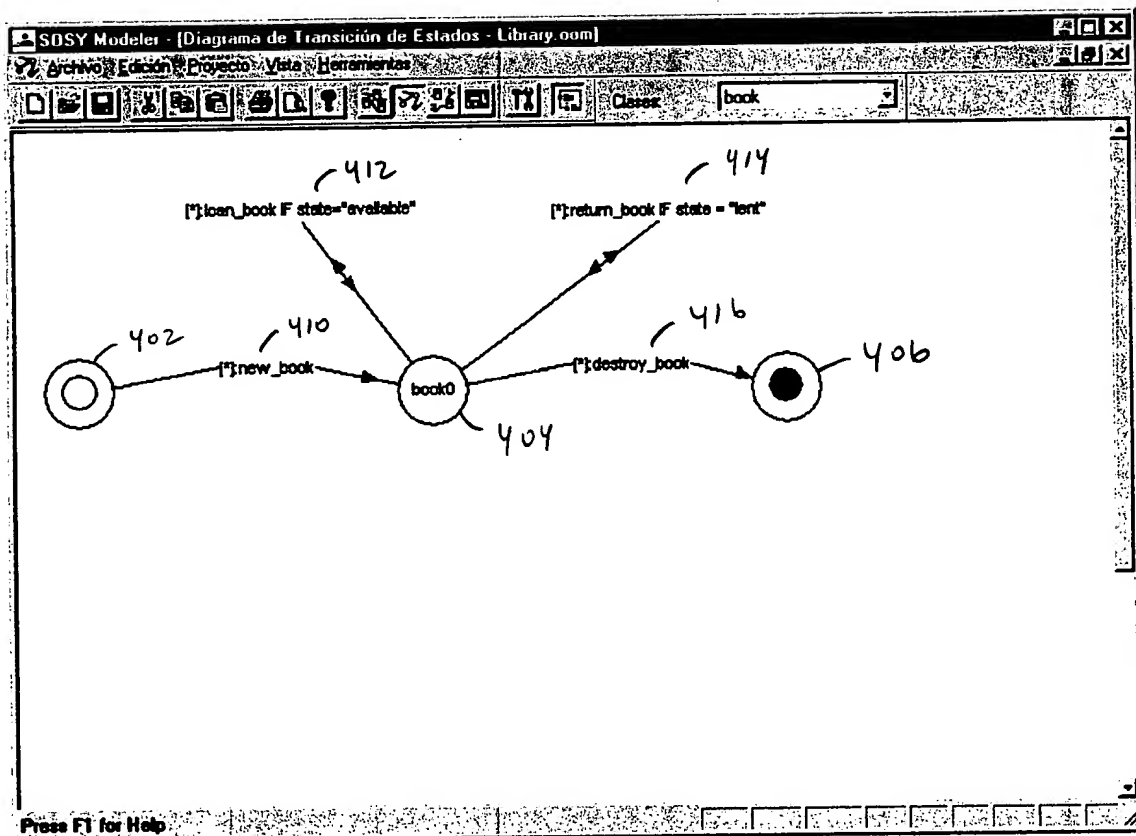


FIG. 4A

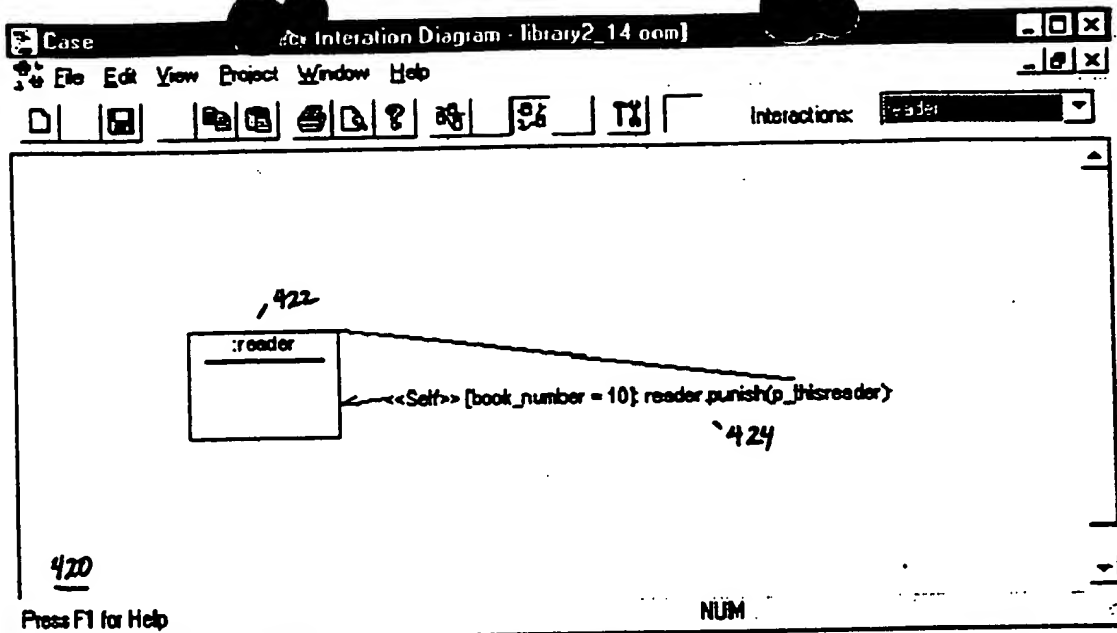


FIG. 4B

Functional Model

Class: reader Attribute: book_number

Cancel

Event	Effect	Condition
loan_book	1	
return_book	1	

Add

Body

Delete

Category

☒ Purpose ☐ State-independent ☐ Discrete-domain

Valuation Details

Event: loan_book Action type: Increment

Valuation condition:

Effect of the event:

1

FIG. 5

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES OF SYSTEM LOGIC TRANSLATORS WILL PERFORM

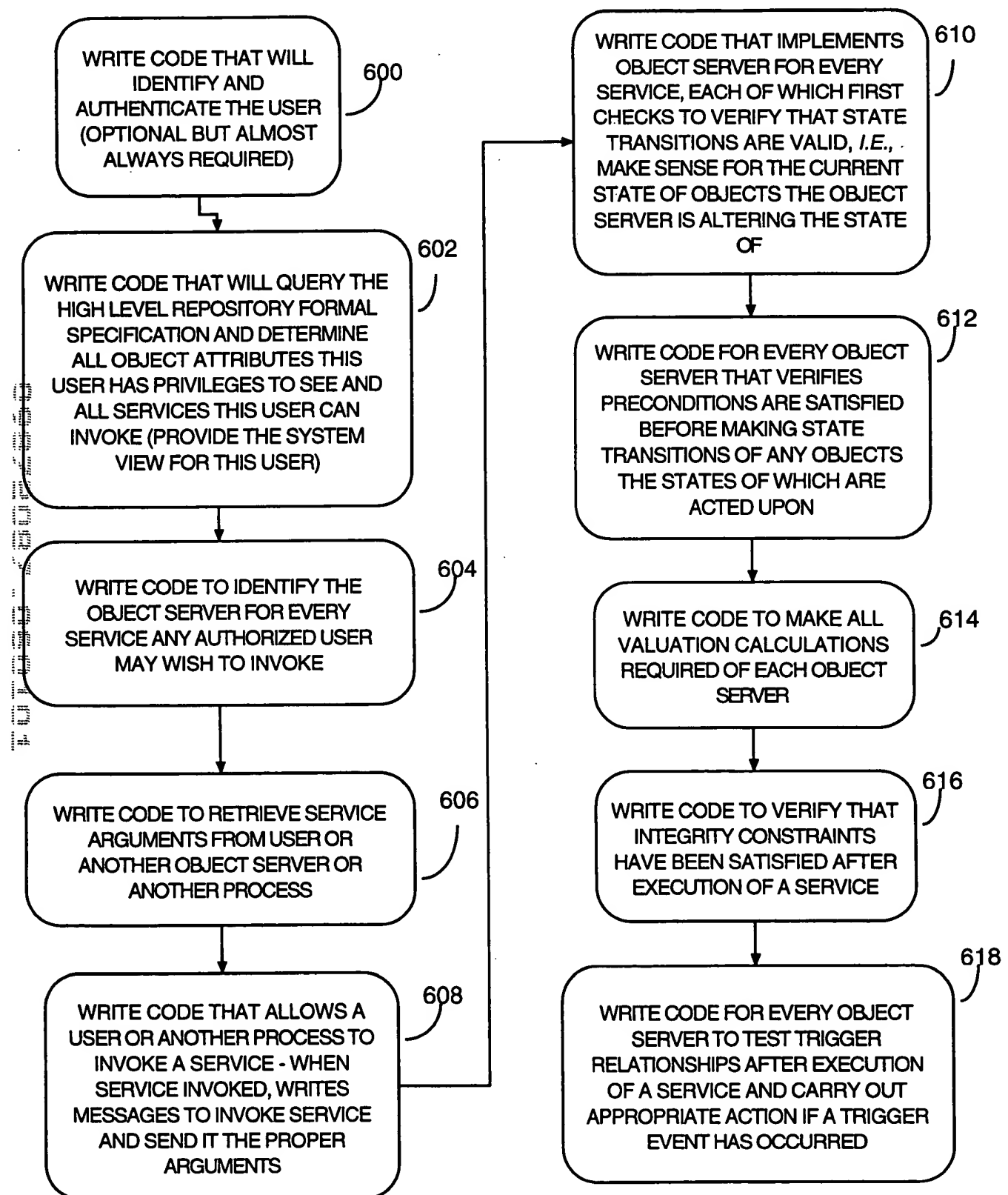


FIG. 6

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES IN THE USER INTERFACE
TRANSLATOR SUBGENUS WILL PERFORM

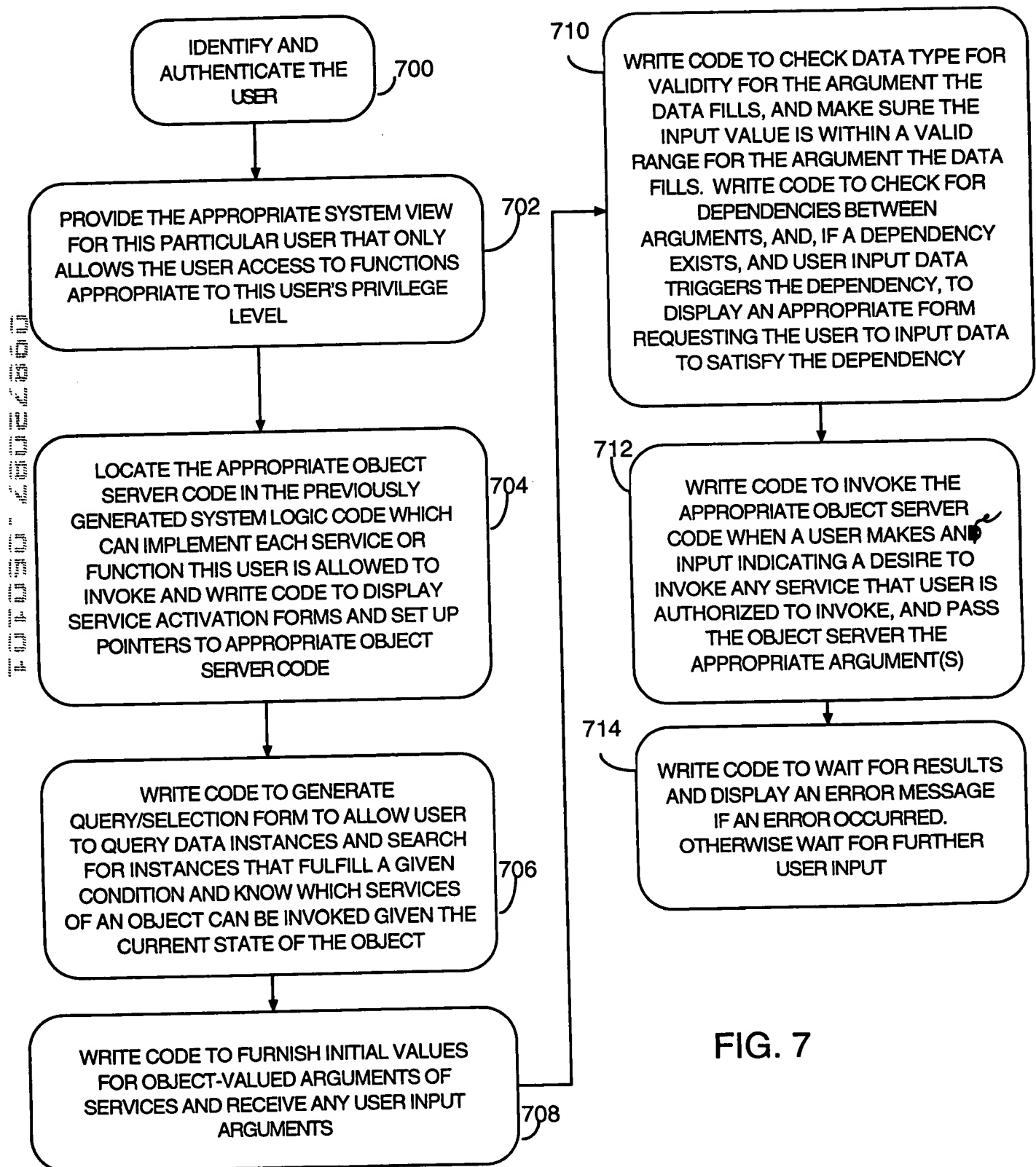


FIG. 7

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES IN THE DATABASE GENERATOR
TRANSLATOR SUBGENUS WILL PERFORM

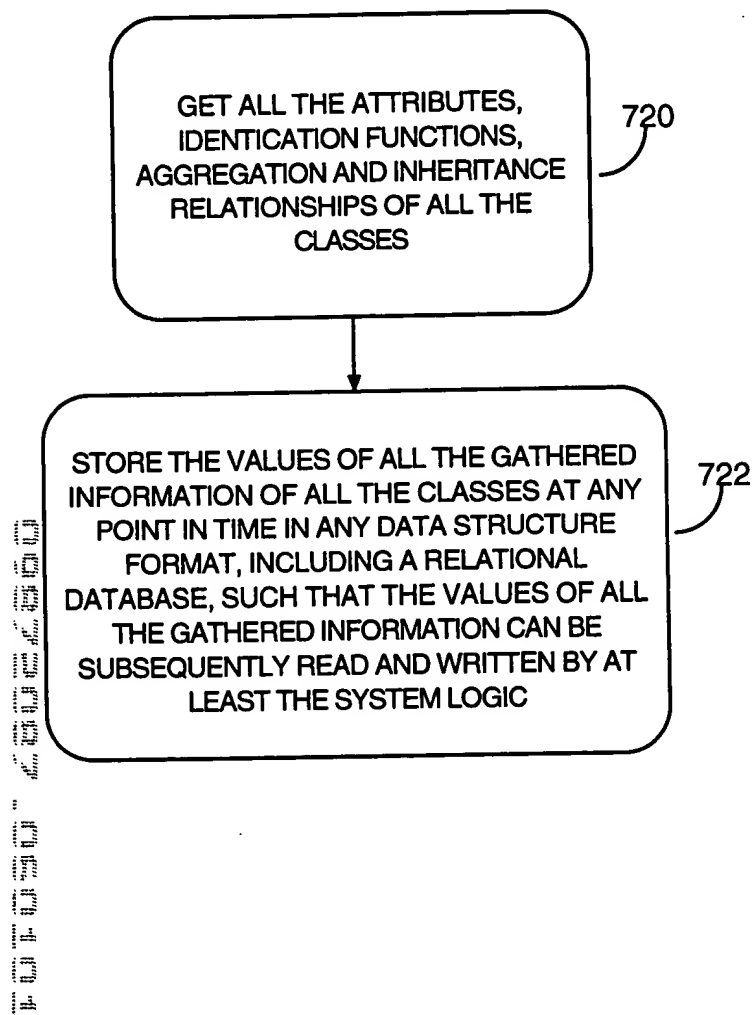
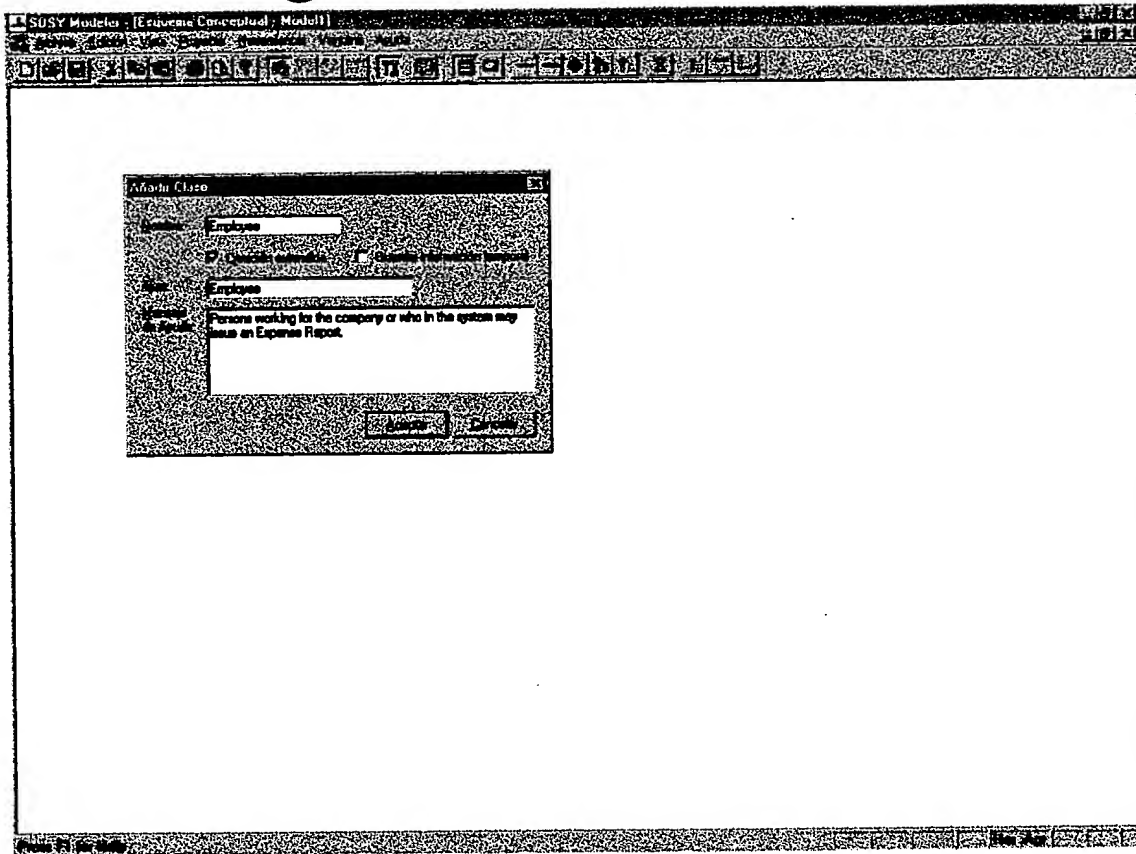
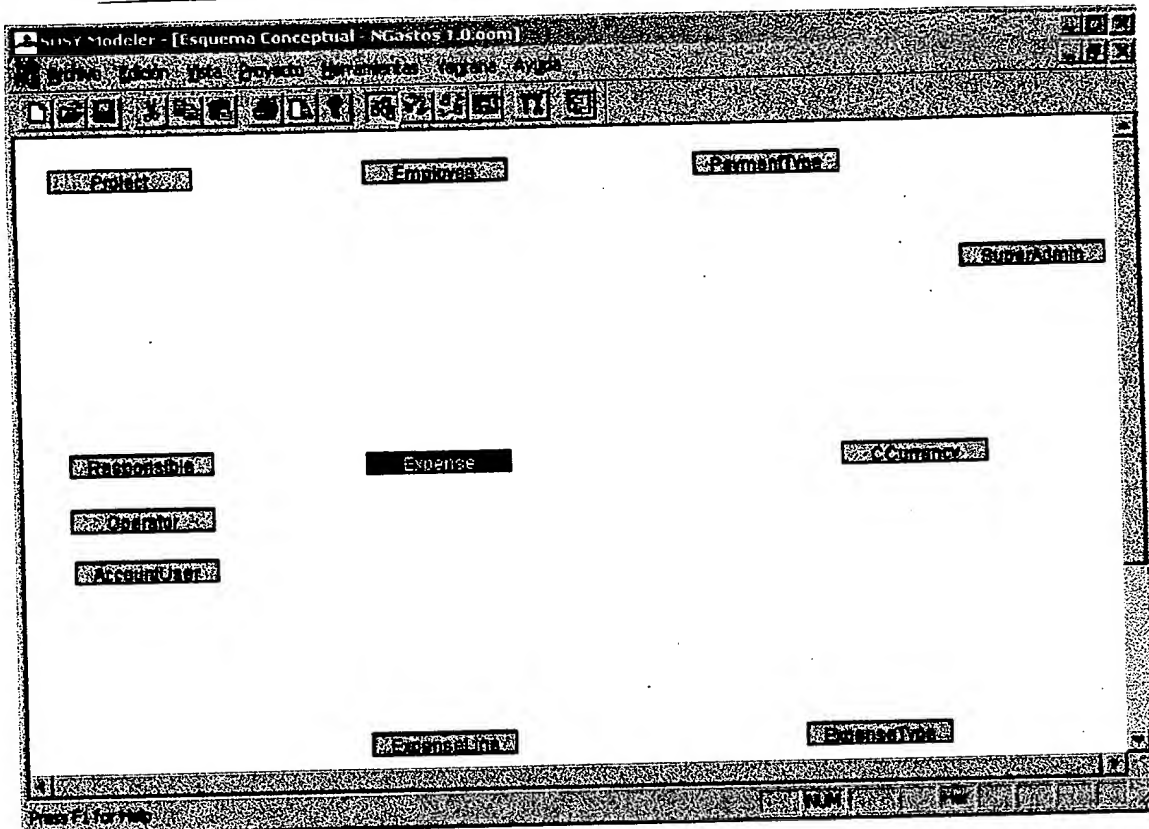


FIG. 8



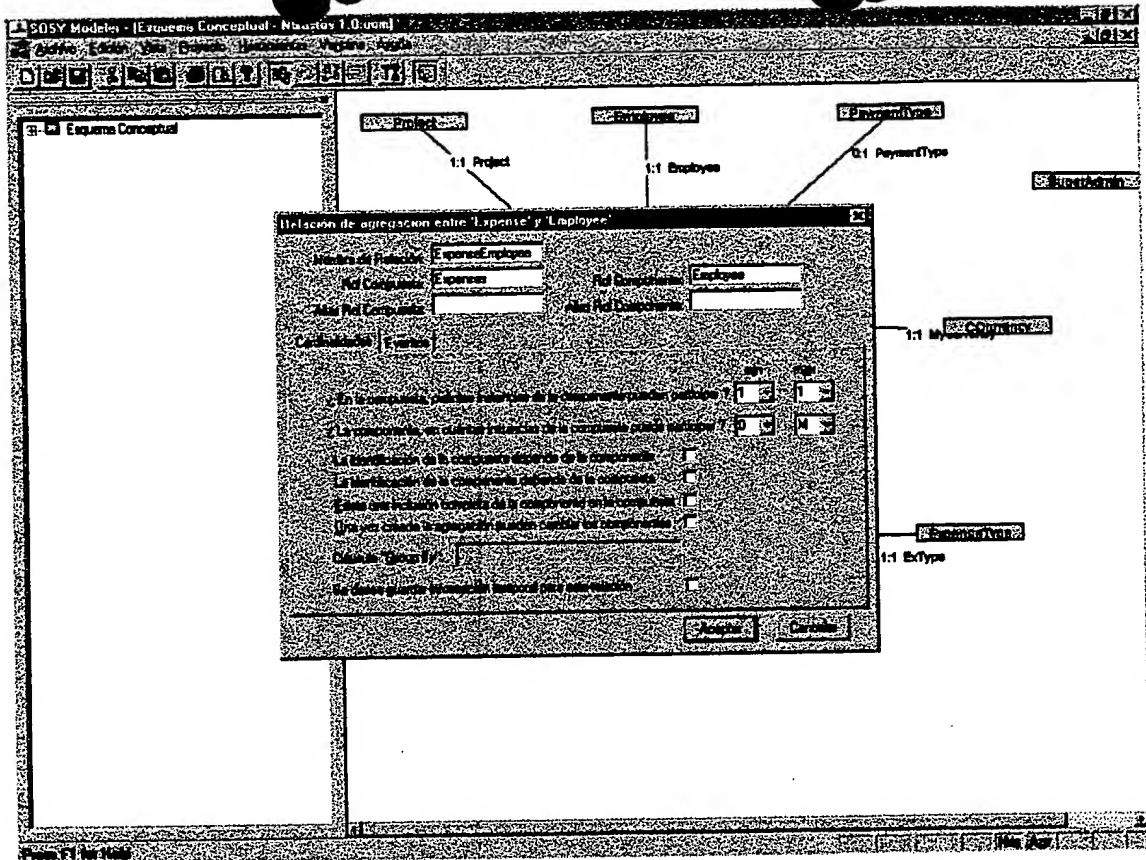
class creation dialog

FIG. 9A



DIALOG SHOWING ALL CLASSES NEEDED & CREATED
IN EXPENSE MANAGEMENT SYSTEM

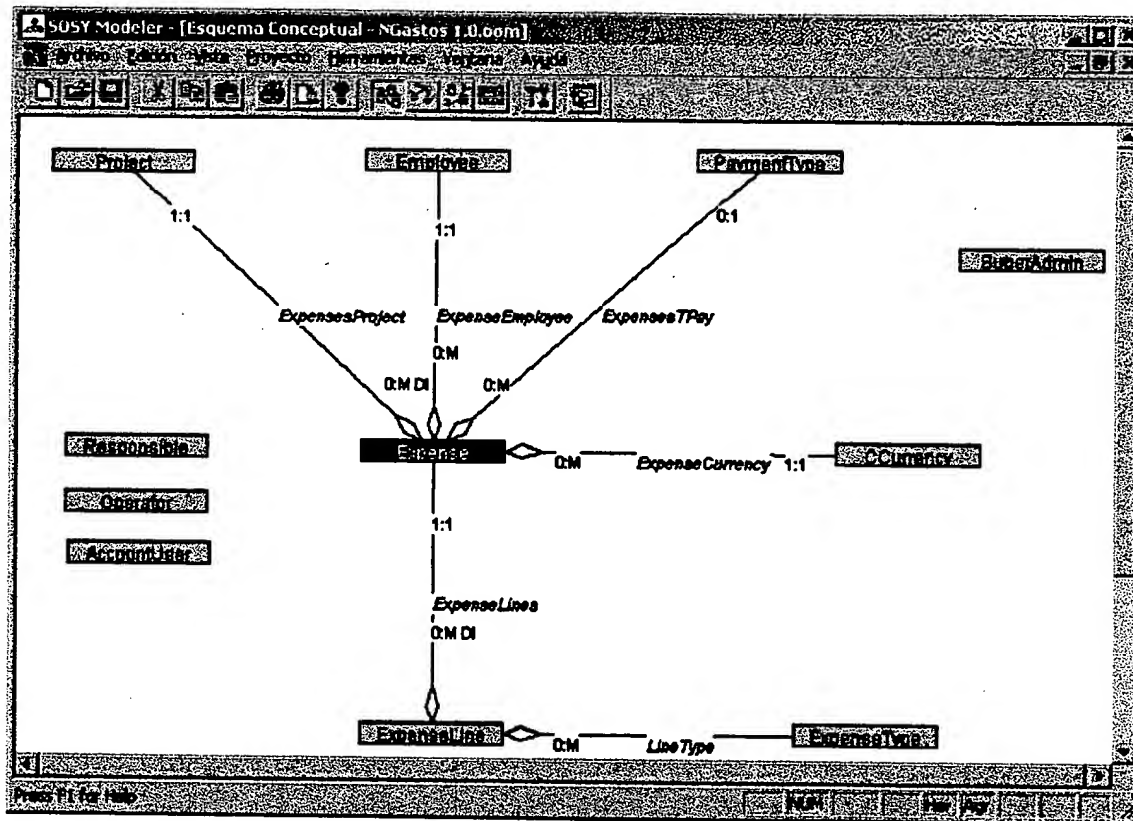
FIG. 9B



dialog to create and modify relationships between classes

FIG. 90

figure shows relationships found with all their properties indicated.



GRAPHIC DIALOG TO CREATE
RELATIONSHIPS BETWEEN CLASSES
AND GRAPHICALLY SHOW THE
RELATIONSHIPS SO CREATED

FIG. 10

Clase

Atributos

Nombre	Tipo atributo	Tipo dato	Id.	Transfo.	Valor defecto	Perd. al crear	Nulos
PresentDate	Constante	Date			today()	Si	No
Status	Variable	Int			0	No	No
Cause	Variable	String	255			Si	No
AuthoDate	Variable	Date			NULL	No	Si
AuthoComments	Variable	String	255		NULL	No	Si
PaymentDate	Variable	Date			NULL	No	Si
PayComments	Variable	String	255			No	Si
TotalExpenses	Derivado	Real					
TotalExpensesCur	Derivado	Real			0	Si	No
Advances	Variable	Real					
AdvancesCur	Derivado	Real				No	Si
Exchange	Variable	Real					
Balance	Variable	Real					
BalanceCur	Derivado	Real					

☐ Información Temporal

Nombre: Tipo Atributo: Tipo Dato:

Alias:

Observaciones:

Clase:

(A)

Clase

Atributo

Fórmulas de Derivación

Condición	Fórmula
	TotalExpenses - Advances

Condición:

Fórmula:

Observaciones:

Clase:

(B)

FIG. 11

Expense

Accounts Services Debitors Performance Agents Transactions Preferences General/Global

Performance

Names	Type data
newexpense	New
deleteexpense	Destroy
close	
authorize	
approve	
pay	
rejectautho	
rejectpayment	
firstPaymentType	Shared with PaymentType
secondPaymentType	Shared with PaymentType
DELETEALL	Tran
TPAY	Tran

☐ Vertical
 ☐ Horizontal
 ☐ Web
 ☐ Desktop
 ☐ Use memo

Name:

Address:

Phone:

Fax:

Email:

Website:

SERVICES OF CLASS "EXPENSE"
FIG. 12

Next figure shows the formula for the "DELETEALL" transaction:

The screenshot shows a software dialog box titled "Use" with a tabbed interface. The "Formulas" tab is selected. The "Transaction" field is set to "DELETEALL". The "Formula" text area contains the code: "FOR ALL Lines DO Lines.deleteLine(Lines). deleteExpense(THIS)". Below the formula area, there are fields for "Account" (set to "Expense"), "Agency" (empty), "Service" (set to "approve"), "Package" (set to "R_thisExpense"), and "Package" (empty). There is a checkbox labeled "Grant Permission to the Transaction" which is unchecked. To the right of these fields are three radio buttons labeled "OK", "Cancel", and "Apply". At the bottom of the dialog, there is a "Class" field set to "Expense" and two buttons labeled "Accept" and "Cancel".

DIALOG TO DEFINE FORMULA FOR "DELETEALL"
TRANSACTION
FIG. 13

Clase

Archivo | Servidor | Derivaciones | Restricciones | Agentes | Transacciones | Procedimientos | Generalidades

Expenditure

Fecha: [Date Field]

Mensaje De Error: [Error Message Field]

Derivation

Fecha: [Date Field]

Mensaje De Error: [Error Message Field]

Clase: Expense

Aceptar Cancelar

INTEGRITY CONSTRAINTS OF EXPENSE CLASS

FIG. 14

The value of the attribute "Cause" will be loaded with the value of the argument "p_Cause" of the event "modify" when "modify" was executed.

The screenshot shows a dialog box titled "Modelo Funcional". At the top, there are two dropdown menus: "Clase" set to "Expense" and "Atributo" set to "Cause". To the right of these are "Aceptar" and "Cancelar" buttons. Below the dropdowns is a table with three columns: "Evento", "Efecto", and "Condición". The first row contains "modify", "p_Cause", and is empty. Below the table are "Agregar", "Modificar", and "Borrar" buttons. Underneath the table is a "Categoría" section with three radio buttons: "Cardinal", "De Estado" (which is selected), and "De Situación". Below this is a "Detalles de Evaluación" section. It contains an "Evento" dropdown set to "modify", a checkbox "Intentar para el resto de atributos" which is unchecked, and a "Condición de evaluación" field. Below this is an "IF:" label followed by a text box. Below that is an "Efecto del evento:" label followed by a text box containing "p_Cause".

Evento	Efecto	Condición
modify	p_Cause	

☐ Cardinal
☒ De Estado
☐ De Situación

Detalles de Evaluación
 Evento: modify
☐ Intentar para el resto de atributos
 Condición de evaluación:
 IF:
 Efecto del evento: p_Cause

DIALOG BOX TO CREATE EVALUATION OF
 "CAUSE" ATTRIBUTE WITH: THE
 "MODIFY" EVENT TO FORM PART OF
 FUNCTIONAL MODEL
 FIG. 15

Class

Arbol de Servicos | Servicos | Derivaciones | Reconocimientos | Agentes | Transacciones | Relaciones | Generalidades

Class provider:

Servicos

Servicio
newexpense
modify
close
authorize
rejectautho
DELETEALL

Arbol de Agentes

Arbol de Agentes
Cause
AuthoComments

Class AccountUser agents de:

Servicio	Temporalidad
Expense.approve	No
Expense.rejectpayment	No
Expense.TPAY	No

Hacer temporal: ☐ No hacer temporal: ☐

Class AccountUser tiene visibilidad sobre:

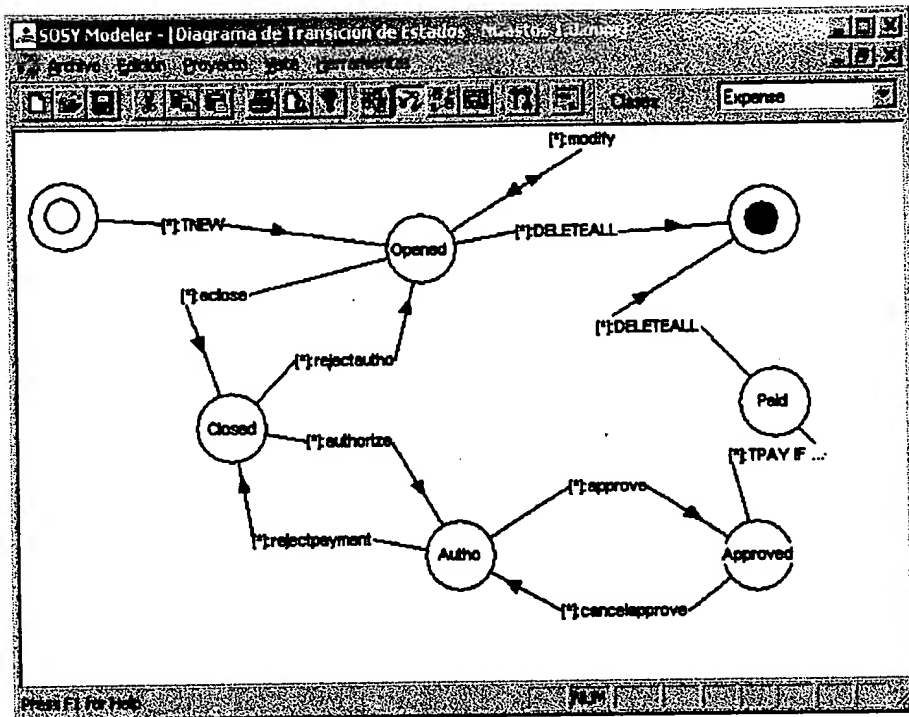
Arbol de Agentes
Expense.id_Expense
Expense.PresentDate
Expense.Status
Expense.PaymentDate
Expense.PayComments
Expense.AuthoDate
Expense.TotExpenses
Expense.TotExpensesCur
Expense.Advances

Class:

Accept Cancel

AGENT RELATIONSHIP DIALOG THAT CAN BE
USED TO GET WHICH SERVICES "ACCOUNT USER"
CAN ACCESS AND VISIBILITY OF CLASS
ATTRIBUTES FOR THIS USER

FIG. 16



STATE TRANSITION DIAGRAM FOR CLASS "EXPENSE"

FIG. 17

According to last paragraph of Procedure, if the Advances are greater than total expenses, the system must force the confirmation of the account user. It is expressed as a precondition in the "TPAY" transaction. Next figure shows it.

The image shows a screenshot of a software window titled "Transición". It contains several fields and buttons:

- Origen:** A dropdown menu with "Expenses" selected.
- Destino:** A dropdown menu with "Paid" selected.
- Buttons:** "Aceptar" and "Cancelar" in the top right corner.
- Details:** A section containing:
 - Account:** A dropdown menu with "AccountUser" and "AccountAdmin" options.
 - Service:** A dropdown menu with "TPAY" selected.
 - Precondition:** A text area containing the logical expression: `Balance > 0 OR ps_ReturnAdvance = TRUE`.
 - Condition de control:** An empty text area.
 - Message en caso de Error:** A text area containing the message: "Check the advanced money excess".

DIALOG BOX TO MODEL PRECONDITION

FIG. 18

Conjunto de Visualización

Nombre: Limpia Borrar

Atributos a visualizar:

Atributo	Tipo dato
Project.ProjectName	String
Employee.EmpName	String
Employee.EmpSur...	String
Status	Int
AuthoDate	Date
PaymentDate	Date
TotExpenses	Real
Balance	Real

Atributos:

Atributo	Tipo dato
Cause	String
AuthoDate	Date
AuthoComments	String
PaymentDate	Date
PayComments	String
TotExpenses	Real
TotExpensesCur	Real
Advances	Real
AdvancesCur	Real
Exchange	Real
Balance	Real
BalanceCur	Real

Clase: Expense

DIALOG BOX USED BY SOSY MODELER
TO ESTABLISH A SET OF ATTRIBUTES
TO BE DISPLAYED FOR THE "EXPENSE" CLASS

FIG. 19

Filtro

Filtro: Alias: Limpia Borrar

Fórmula: << Variable

Observ:

Variables

Nombre	Alias	Tipo dato	Tipo estado	Estado
vf_Project	Project	Project	Sel. Población	
vf_Employee	Employee	Employee	Sel. Población	
vf_DateIniIssue	Initial Issuing Date	Date		
vf_DateEndIssue	Final Issuing Date	Date		
vf_DateIniApp	Initial Approving D...	Date		

Nueva Modificar Borrar

Tipo: ☐ Simple ☐ Objeto-valorado

Nombre: Estado de sim:

Alias: Estado de selección:

Tipo de dato:

Clase: Aceptar Cancelar

DIALOG BOX USED BY SOSY MODELER
TO ESTABLISH THE SEARCHING CRITERIA
FOR THE EXPENSE CLASS AND TO ESTABLISH
THE FILTER FORMULA ^{TO USE} AND THE VARIABLES
TO REQUEST THE USER TO ENTER

FIG. 20

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES IN THE DOCUMENTATION
GENERATOR TRANSLATOR SUBGENUS WILL PERFORM

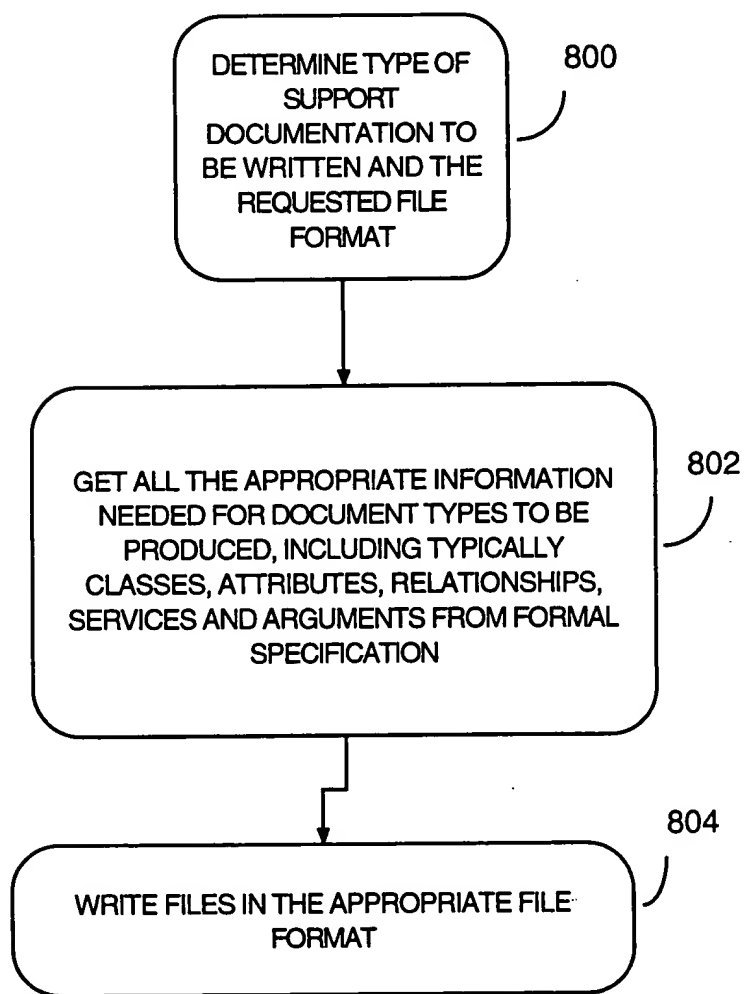


FIG. 21

[illegible]